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37th Annual Meeting. APS Division of Plasma Physics 6-10 November 1995, Louisville, KY Abstract Submittal Form

Deadline: Friday, 7 July 1995

Subject Classification Catagory 7.4 X-ray Lasers ☐ Theory ☒ Experiment

(refer to the DPP Catagory list in APS Meeting News)

X-ray Laser Interferometry of Exploding X-ray Laser Foils*, R. Cauble, T. W. Barbee Jr, P. Celliers, L. B. Da Silva, C. Decker, R. A. London, J. C. Moreno, J. E. Trebes, A. S. Wan and F. Weber, *Lawrence Livermore National Laboratory, Livermore, CA* – We have employed an yttrium x-ray laser to perform end-on 155 Å interferometry of short (1 - 2 mm long) laser-exploded yttium and selenium foils. Using this technique we are able to measure the 2D electron density profile of the created plasma. Density variations in the Se foil plasma reveals evidence of intensity fluctuations in the focal spot of the optical laser producing the plasma. Density variations are also evident in the Y plasma, but since we are sensitive to x-ray laser gain in yttrium, we also see large variations in the gain profile, which may be caused by temperature differences in the plasma. This observation may imply a limit on the coherence obtainable by a laser-produced x-ray laser in the absence of optical beam smoothing.

** Work performed under the auspices of the U. S. Department of Energy by LLNL under contract number W-7405-ENG-48*

☐ Prefer Poster Session

☒ Prefer Oral Session

☐ Place in the following grouping :
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☐ Special Facilities Requested
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Submitted by:

(Signature of APS Member)

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A faxed copy is NOT acceptable. This form, or a computer-generated form, plus TWO COPIES must be received by **Friday, 7 July 1995** at the following address:

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